Rates of Reactions

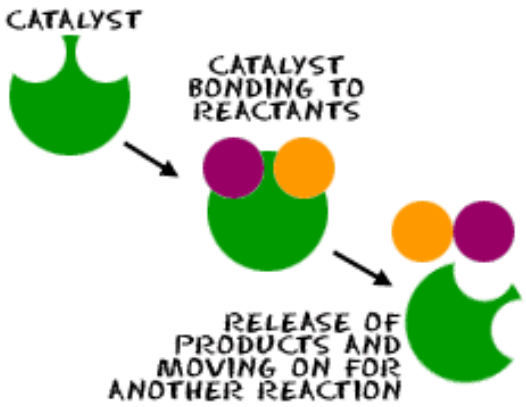
Catalysts

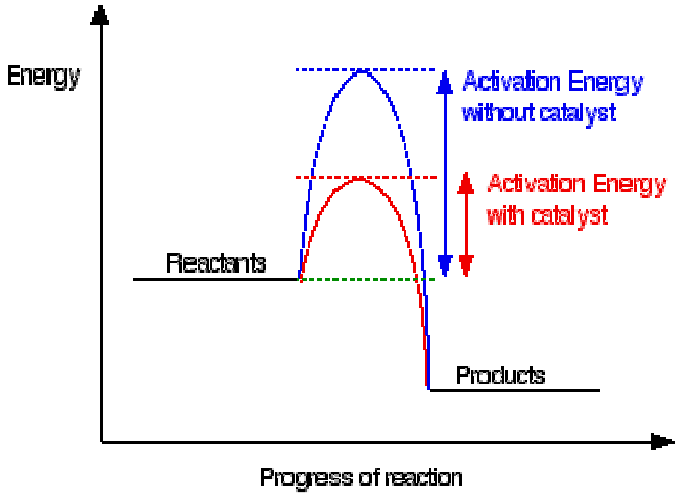
Sometimes we need to change the rate of a reaction; we can speed up the rate of a reaction by adding a **catalyst.**

A catalyst is something which increases the rate of a reaction but it is not affected chemically itself at the end of a reaction. Catalysts are not used up in the reaction so they can be used over and over again.

Catalysts are often very expensive as they are made of precious metals. But, it is usually cheaper to pay for a catalyst for all the energy needed for the **high temperature or high pressure.** Some catalysts work by providing a surface for the reacting particles to come together.

They lower the **activation energy** for the particles to react. Catalysts often come in the form of **powders, pellets** or **fine gauzes,** this provides the largest possible surface area for them to work.





Endo- and Exo-thermic

When a reaction takes place energy is involved, as energy is transferred as chemical bonds are broken and/or formed.

Transferring energy **from** the reacting chemicals **to** the surroundings is called **exothermic reactions.** This means they heat up the surroundings, cause an increase in temperature.

Transferring energy **from** the surroundings **to** the reacting chemicals is called **endothermic reactions.** These mean they take in heat from surroundings, causing a decrease in temperature.

Neutralisation between acids and alkalis is **exothermic.**

Thermal decomposition and photosynthesis are **endothermic.**